IN THE CLAIMS:

1. (currently amended) Projection lens, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein the gas chamber is constructed as an at least approximately plane-parallel manipulation chamber located between the lens arrangement and the image plane, and wherein the manipulation chamber is connected with pressure change means and has non-bending end plates.

2. (currently amended) Projection lens, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows said gas being selected from the group consisting of Nitrogen, Oxygen and Helium and a mixture thereof, wherein the gas chamber is constructed as an at least approximately plane-parallel manipulation chamber located between the lens arrangement and the image plane, and wherein the manipulation chamber is connected with gas composition change means.

3. (currently amended) Projection lens, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows said gas being selected from the group consisting of Nitrogen, Oxygen and Helium and a mixture thereof, wherein the gas chamber is constructed as an at least approximately plane-parallel manipulation chamber located between the lens arrangement and the image plane, and wherein the manipulation chamber is connected with pressure change means and gas composition change means.

Claims 4-6 (canceled).

7. (currently amended) Projection lens according to claim 1, wherein an end plate of the lens arrangement is bipartite, and wherein the ~~two~~ end plates ~~parts~~ are arranged at a spacing from one another and form the manipulation chamber between them.

Claims 8-18 (canceled)

19. (currently amended) System for projection lens, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein the gas chamber is a manipulation chamber formed between adjacent plane-parallel optical elements, having non-bending end plates and wherein the refractive index can be varied in the manipulation chamber by pressure changes.

20. (previously presented) System for projection lens having an object, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein the gas chamber is constructed as an at least approximately plane-parallel manipulation chamber, and further including an at least approximately plane-parallel manipulable gas interspace, for the purpose of removing field curvature, on a substrate, which is to be exposed, in the sixth optical group.

21. (currently amended) System for projection lens, in particular for microlithography, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows said gas being selected from the group consisting of Nitrogen, Oxygen and Helium, wherein the gas chamber is constructed between adjacent approximately plane-parallel optical elements to form a manipulation chamber, and wherein the refractive index can be variesd in the manipulation chamber by pressure changes and changes in gas composition.

22. (currently amended) System for projection lens according to claim 19, wherein the offset of the refractive index can be set via the ~~gas composition~~pressure changes in such a way that the refractive index can be manipulated in both directions.

23. (previously presented) System for projection lens according to claim 20, wherein the offset of the refractive index can be set via the gas composition in such a way that the refractive index can be manipulated in both directions.

24. (previously presented) System for projection lens according to claim 21, wherein the offset of the refractive index can be set via the gas composition in such a way that the refractive index can be manipulated in both directions.

25. (previously presented) System for projection lens according to claim 19, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a substrate, which is to be exposed, in a sixth optical group.

Claim 26 (canceled).

27. (previously presented) System for projection lens according to claim 21, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a substrate, which is to be exposed, in a sixth optical group.

28. (currently amended) Projection exposure machine in microlithography, having a light source which outputs radiation of wavelength shorter than 370 nm, where it comprises a projection lens according to claim 1, 2 or 3.

29. (currently amended) Method for producing microstructured components, in the case of which a substrate provided with a light-sensitive layer is exposed to UV light by means of a mask and a projection exposure machine with a lens arrangement, ~~wherein an at leastand an~~ approximately plane-parallel manipulation chamber which is connected to a gas source, the gas being selected from a group consisting of Nitrogen, Oxygen, Helium and a mixture thereof ~~is created in the projection exposure machine~~, and manipulating the refractive index by pressure changes and changes in gas composition.

30. (previously presented) Method according to claim 29, wherein the manipulation chamber is installed in the projection lens on the input side of the lens arrangement or on the side of the mask.

31. (previously presented) Method according to claim 29, wherein the manipulation chamber is installed on the output side of the lens arrangement or on the side of the wafer.

32. (previously presented) Method according to claim 29, wherein the manipulation chamber is installed between the lens arrangement and the image plane.

Claim 33 (canceled).

34. (previously presented) Method according to claim 29, wherein when the projection lens is being tuned a filling gas is introduced which is subsequently exchanged by the operator for a gas mixture.

35. (previously presented) A system according to claim 27, wherein provided in addition to the manipulation chamber is a further manipulable gas interspace, by means of which a field curvature on the substrate to be exposed can be removed.

36. (previously presented) Method of producing microstructured components, in the case of which a substrate provided with a light-sensitive layer is exposed by ultraviolet light by means of a mask and a projection exposure machine according to claim 26 and is structured after the development of the light-sensitive layer in accordance with a pattern included on the mask.

37. (currently amended) Projection lens for microlithography, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein the gas chamber a manipulation chamber formed between adjacent plane-parallel optical elements having non-bending end plates, and wherein the manipulation chamber is connected with pressure change means.

38. (currently amended) Projection lens for microlithography, having ~~a~~an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein the gas chamber is constructed between adjacent plane-parallel[~~a~~] optical elements to form a manipulation chamber having non-bending end plates, the manipulation chamber being connected with gas composition change means.

39. (currently amended) Projection lens for microlithography, having ~~a~~an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein the gas chamber is constructed between adjacent approximately plane-parallel[~~a~~] optical elements to form a manipulation chamber, the manipulation chamber being connected to pressure change means and gas composition change means.

40. (currently amended) Projection lens, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein the gas chamber is constructed as an at least approximately plane-parallel manipulation chamber, said manipulation chamber having non-bending end plates and

located in the lens arrangement and between an end plate and the lens situated adjacent to the end plate, and wherein the manipulation chamber is connected with pressure change means.

41. (currently amended) Projection lens, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein that the gas chamber is constructed as an at least approximately plane-parallel manipulation chamber having non-bending end plates located in the lens arrangement and between ~~a~~none of said end plates and the lens situated adjacent to the end plate, and wherein the manipulation chamber is connected with gas composition change means.

42. (currently amended) Projection lens, having an object plane, having an image plane, having a lens arrangement and having at least one gas chamber filled with gas or through which gas flows, wherein that the gas chamber is constructed as an at least approximately plane-parallel manipulation chamber having non-bending end plates located in the lens arrangement and between ~~a~~none of said end plate and the lens situated adjacent to the end plate, and wherein the manipulation chamber is connected with pressure change means and gas composition change means.